How Do Piezoelectric Crystals Work In Generating Electricity

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Piezo Crystals

Piezo crystals, special minerals with electromagnetic properties, can produce an electric field whenever they are mechanically deformed or subject to vibration, commonly known as piezoelectric effect. Besides, piezo cells have small, positively charged particles at their center. This small particle is forced to move and create a charge whenever force is exerted on the crystal. And, this electric field is able to produce voltage. Sensor is common use for piezo crystals. Once force is applied, it will create a signal. And now, scientists are researching on how to use this power as alternative "green" energy.

Small-Scale Electricity

Since piezo crystal creates a fairly low electrical charge, they are used in high-repetition applications to compensate for this. For instance, creating electricity harnesses personal human power by using piezo energy. Every day, people will move thousands of times. The crystal generates a small charge every step of the way, for piezo crystals are embedded in everyday apparel like shoes. As time goes on, these small charges will build up until the amount becomes significant, and then you can use this energy to keep personal electronics, such as cellphones and MP3 players, fully charged.

Large-Scale Electricity

Linking many separate crystals is another way to use piezoelectric energy, for the small charges from each crystal combine can create one large source of power. Piezoelectric crystals are embedded in staircases and floor tiles in high-traffic areas like subway stations and sidewalks, and these individual generators are all linked. The system collects the energy as crowds of people walk through the area and generate force. Piezoelectric energy is completely clean and renewable. With the development of the technology and the study methods, people will create systems that generate power at many

different levels, the individual sources working together toward energy independence.